

October 12, 2010

Osage ENR Office  
First National Bank Building  
100 W. Main Street, Suite #304  
Pawhuska, Oklahoma 74056

Re: Area Permit Request  
CO<sub>2</sub> Test Area I NBU

Location: Parts of SE/4 Sec 10, S/2 Sec 11, Parts of SW/4 Sec 12,  
All of Sec 14, and the N/2 of Sec 23-T27N-R05E  
Osage County, Oklahoma

*this is slightly less  
than before*

Dear ENR Personnel:

Chaparral Energy, L.L.C. as operator of the North Burbank Waterflood Unit (herein after called NBU) wishes to test injection of CO<sub>2</sub> and water into new and re-worked wells within the area referenced to prove the viability of this form of tertiary recovery at NBU. Therefore we are submitting this Area Permit request for that purpose.

For all injection wells within the Permit Area Chaparral is seeking an average injection of 2000 BWPD and a maximum of 4000 BWPD at 640 psig injection pressure (where the wells are not currently authorized by rule for water injection) and an average injection of 4000 MCFD of CO<sub>2</sub> and a maximum of 6000 MCFD at 1060 psig injection pressure.

Since this area permit takes so long to review and approve Chaparral is seeking approval to begin water injection immediately (Emergency Clause). The necessity of this emergency declaration being that to effectively put CO<sub>2</sub> in this flood test area the reservoir pressure will need to be raised requiring us to inject water long before the CO<sub>2</sub> begins. No CO<sub>2</sub> injection will begin until the Area Permit is approved, just water on an emergency basis.

Chaparral is submitting data on all existing wells in the referenced area and all wells within a one quarter (1/4) mile buffer of the proposed wells in Area I. We are proposing to workover all existing (non-plugged) injection and producing wells within the area to guarantee that water and the future CO<sub>2</sub> remain within the Burbank Sand reservoir.

To that end all current producers in the test area and surrounding buffer will be constructed such that there is a 500 foot sheath of cement at the Burbank Sand top behind existing casing strings and that new CO<sub>2</sub> resistant tubulars will be run. Also 500 feet from surface, the long string casing will be parted and pulled, or perforated enough, so that cement can be placed from "earthen well wall to earthen well wall" around the new CO<sub>2</sub> resistant production casing which will be run and cemented to surface. See Diagram A (Parts 1 thru 4 which are typical proposed production well schematics) for reference.

All current injection wells in the test area and surrounding buffer will be worked over to place a 500 foot sheath of cement at the Burbank Sand behind existing casing strings. Also 500 feet from surface, the long string casing will be parted and pulled, or perforated enough, so that cement can be placed from "earthen well wall to earthen well wall" around the new injection casing which will be run and cemented to surface. Also new CO<sub>2</sub> resistant tubulars will be placed in these wells. See Diagram B (Typical Injection Well Schematic) for reference.

We are also enclosing all logs and core data available in the area. Unfortunately, not a lot of logs were run in this area. Phillips Petroleum the Unit operator when most cores were taken, did not core every well, and those they did then had very specific tests done on them.

Your prompt attention to this request is appreciated. If you have any questions, or need more data contact us at the address listed.

Sincerely,  
**Chaparral Energy, L.L.C.**



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Enclosures: Proposed Well Bore Diagrams, Offset Well Tabulation Data, and Core and Log Data

Cc: Mr. Ray Leissner, USEPA Region 6, Dallas, Texas w/all enclosures ✓